

THE CLAIMS

We claim:

1. Medical instrument for the treatment of biological tissue, comprising a means for generating extracorporeal pressure waves and a transmission element (2) for coupling the pressure waves into the body of living beings, characterized in that the pressure wave may be generated by an impact member (10) hitting a transmission element (2) and the pressure wave propagates in the transmission element (2), and that the transmission element (2) has an inwardly curved exit boundary surface configured such that the pressure waves may be coupled into the biological tissue and may be focused in the biological tissue.
2. Medical instrument of claim 1, characterized in that the means for generating the pressure waves is an impact member (10) guided in a housing and adapted to be reciprocated by means of a drive means, the impact member (10) exerting one or more impulses on the transmission element (2) and inducing a pressure wave in the transmission element (2) due to the impulse, said pressure wave propagating to the exit boundary surface (19) of the transmission element (2).
3. Medical instrument of claim 2, characterized in that the impact member (10) is arranged coaxially to the transmission element (2).
4. Medical instrument of one of claims 1 to 3, characterized in that the pressure wave source may be driven periodically, the impact member (10) and the transmission element (2) being self-returnable.
5. Medical instrument of one of claims 1 to 4, characterized in that the impact frequency of the impact member (10) is about 1 to 30 Hz, preferably 1 to 12 Hz.

6. Medical instrument of one of claims 1 to 5, characterized in that a spring/damping element (15) is provided between the transmission element (2) and the housing (4).
7. Medical instrument of one of claims 1 to 6, characterized in that the exit boundary surface (19) of the transmission element (2) travels a stroke of less than 0.5 mm due to the impulse.
8. Medical instrument of one of claims 1 to 7, characterized in that an intermediate element (9) is arranged between the impact member (10) and the transmission element (2), which intermediate element passes the impulse from the impact member (10) to the transmission element (2).
9. Medical instrument of one of claims 1 to 8, characterized in that the outer edges of the exit boundary surface of the transmission element are rounded or provided with a protective coating.
10. Medical instrument of one of claims 1 to 9, characterized in that the transmission element has a larger diameter at the exit boundary surface (19) than at the entry boundary surface (20).
11. Medical instrument of one of claims 1 to 10, characterized in that the transmission element (2) is in the shape of an exponential horn.
12. Medical instrument of one of claims 1 to 11, characterized in that impedance-adjusting media (5) are provided between the exit boundary surface (19) of the transmission element (2) and the biological tissue for improving the coupling of the pressure wave into the biological tissue.